

Docket No. 50751

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: T. Zampini et al.

FILED: HERewith

FOR: NOVEL POLYMERS AND PHOTORESIST COMPOSITIONS
FOR SHORT WAVELENGTH IMAGINGTHE HONORABLE COMMISSIONER OF PATENTS AND TRADEMARKS
WASHINGTON, DC 20231

SIR:

PRELIMINARY AMENDMENT

Applicant files herewith the above-identified application. Please amend the application as follows before calculating the filing fee of the application.

IN THE CLAIMS

Please renumber claims 16-34 as appearing on page 24, line 11 through page 26, line 21 as claims 18-36 respectively. The claim amendments below reflect that claim renumbering.

6. (amended) The method of claim 1 wherein the resin comprises phenolic units.
7. (amended) The method of claim 1 wherein the polyol is an aromatic compound.
8. (amended) The method claim 1 wherein the polyol is a bisphenol, a polyhydroxybenzene or a polycarboxylic acid compound.
9. (amended) The method of claim 1 wherein the methylene compound or keto compound is a benzyl compound, or an aldehyde substituted with one or more electronegative groups.

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10. (amended) The method of claim 1 wherein the resin comprises halogen, halogenated lower alkyl, nitro, cyano, sulfinyl, O-C-O or sulfonyl groups.
11. (amended) The method of claim 1 wherein the resin comprises at least one of fluorine atom, fluorinated lower alkyl, perfluoroalkyl, perfluoroalkylene, fluorinated cycloalkyl, and fluorinated ethers and esters including fluorinated cyclic ethers and esters.
12. (amended) The method of claim 1 wherein the resin comprises acrylate units.
13. (amended) The method of claim 1 wherein the resin is a homopolyacetal.
14. (amended) The method of claim 1 wherein the resin is a copolyacetal.
15. (amended) The method of claim 1 wherein the polymer is chemically amplified positive resist.
16. (amended) The method of claim 1 wherein the polymer is a negative resist.
18. (amended) The photoresist composition of claim 17 wherein repeat units of the polymer comprise one or more electronegative substituents.
31. (amended) A method of forming a positive or negative photoresist relief image, comprising:
- (a) applying a coating layer of a photoresist of claim 17 on a substrate; and
 - (b) exposing and developing the photoresist layer to yield a relief image.
33. (amended) An article of manufacture comprising a substrate having coated thereon a layer of the photoresist composition of claim 17.

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Please cancel claims 19-30 and 34 without prejudice.

REMARKS

To correct an inadvertent misnumbering of the claims, claims 16-34 as appearing on page 24, line 11 through page 26, line 21 have been renumbered as claims 18-36 respectively. For the sole purpose of reducing initial filing fees, claims 6-16, 18, 31 and 33 have been amended, and claims 19-30 and 34 have been cancelled without prejudice. No new matter has been added by virtue of the amendments.

Applicant reserves the right to add any of the cancelled claims to the application during prosecution.

Early consideration and allowance of the application are earnestly solicited.

Respectfully submitted,



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VERSION WITH CHANGES MARKED

6. (amended) The method of claim 1 [any one of claims 1 through 5] wherein the resin comprises phenolic units.

7. (amended) The method of claim 1 [any one of claims 1 through 6] wherein the polyol is an aromatic compound.

8. (amended) The method claim 1 [any one of claims 1 through 6] wherein the polyol is a bisphenol, a polyhydroxybenzene or a polycarboxylic acid compound.

9. (amended) The method of claim 1 [any one of claims 1 through 8] wherein the methylene compound or keto compound is a benzyl compound, or an aldehyde substituted with one or more electronegative groups.

10. (amended) The method of claim 1 [any one of claims 1 through 9] wherein the resin comprises halogen, halogenated lower alkyl, nitro, cyano, sulfinyl, O-C-O or sulfonyl groups.

11. (amended) The method of claim 1 [any one of claims 1 through 10] wherein the resin comprises at least one of fluorine atom, fluorinated lower alkyl, perfluoroalkyl, perfluoroalkylene, fluorinated cycloalkyl, and fluorinated ethers and esters including fluorinated cyclic ethers and esters.

12. (amended) The method of claim 1 [any one of claims 1 through 11] wherein the resin comprises acrylate units.

13. (amended) The method of claim 1 [any one of claims 1 through 11] wherein the resin is a homopolyacetal.

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14. (amended) The method of claim 1 [any one of claims 1 through 12] wherein the resin is a copolyacetal.

15. (amended) The method of claim 1 [any one of claims 1 through 14] wherein the polymer is chemically amplified positive resist.

16. (amended) The method of claim 1 [any one of claims 1 through 14] wherein the polymer is a negative resist.

17. A photoresist composition comprising a photoactive component and a resin binder comprising a polymer that comprises repeat units of:

- 1) an active methylene or aldehyde or other carbonyl compound that forms an acetal group in a polymerization or co-polymerization reaction; and
- 2) a polyol or thiol that reacts with the methylene or aldehyde or other carbonyl compound to form the acetal group.

18. (amended) The photoresist composition of claim [15] 17 wherein repeat units of the polymer comprise one or more electronegative substituents.

31. (amended) A method of forming a positive or negative photoresist relief image, comprising:

- (a) applying a coating layer of a photoresist of claim 17 [any one of claims 15 through 27] on a substrate; and
- (b) exposing and developing the photoresist layer to yield a relief image.

33. (amended) An article of manufacture comprising a substrate having coated thereon a layer of the photoresist composition of claim 17 [any one of claims 15 through 27].

TOGETHER WITH